

In the Claims

Listing of the Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application.

1. (Original) A strain of *Francisella* species wherein a gene which encodes an enzyme in the purine pathway has been inactivated, and which is able to produce a protective immune response in an animal, for use as a live prophylactic or therapeutic vaccine against infection by said *Francisella* species.
2. (Original) A strain according to claim 1 wherein the gene encodes an enzyme, which is active early in the purine pathway.
3. (Original) A strain according to claim 1 wherein the gene is one of the first six enzymes in the purine pathway.
4. (Currently Amended) A strain according to ~~claim 1, 2 or 3~~ Claim 1 wherein the gene is *purF*.
5. (Currently Amended) A strain according to ~~any of claims 1 to 4~~ Claim 1 wherein said gene is inactivated by complete or partial deletion mutation or by insertional mutation.
6. (Currently Amended) A strain according to ~~any one of the preceding claims~~ Claim 1 which is a strain of *Francisella tularensis*.
7. (Original) A strain according to claim 6 which is a strain of *Francisella tularensis* subspecies *tularensis*.
8. (Original) A strain according to claim 6 which is a strain of *Francisella tularensis* subspecies *novicida*.
9. (Original) A pharmaceutical composition comprising a live strain of *Francisella* species wherein a gene, which encodes an enzyme in the purine pathway, has been inactivated, and which is able to produce a protective immune response in an animal, in combination with a pharmaceutically acceptable carrier.

10. (Currently Amended) ~~A composition according to claim~~ The pharmaceutical composition of Claim 9 wherein the gene encodes an enzyme, which is active early in the purine pathway.
11. (Currently Amended) ~~A composition according to claim 9 or 10~~ The pharmaceutical composition of Claim 9 wherein the gene is one of the first six enzymes in the purine pathway.
12. (Currently Amended) ~~A composition according to any of claims 9, 10 or 11~~ The pharmaceutical composition of Claim 9 wherein the gene is *purF*.
13. (Currently Amended) ~~A composition according to any of claims 9 to 12 wherein~~ The pharmaceutical composition of Claim 9 wherein said gene is inactivated by complete or partial deletion mutation or by insertional mutation.
14. (Currently Amended) ~~A pharmaceutical composition according to any one of claims 9 to 13~~ The pharmaceutical composition of Claim 9 wherein the strain is a strain of *Francisella tularensis*.
15. (Original) A pharmaceutical composition according to claim 13 wherein the strain is a strain of *Francisella tularensis* subspecies *tularensis* or a strain of *Francisella tularensis* subspecies *novicida*.

Claims 16-22 (Cancelled).

23. (Currently Amended) A method of preventing or treating infection by a *Francisella* species, which method comprises administering to an animal an effective amount of a live strain ~~according to any one of claims 1 to 8 or a composition according to any one of claims 9 to 15~~ of *Francisella* species, in which a gene that encodes an enzyme in the purine pathway has been inactivated, to produce a protective immune response in an animal.
24. (Original) A method according to claim 23 for preventing or treating infection by *Francisella tularensis*, wherein the strain of *Francisella* species used in the method is a strain of *Francisella tularensis* subspecies *tularensis* or *Francisella tularensis* subspecies *novicida*.

25. (Currently Amended) ~~A method for preparing a strain according to any one of claims 1 to 8, which comprises transforming a strain of *Francisella* species so as to inactivate said gene~~ The strain of Claim 1, wherein the gene is inactivated using cryotransformation.
26. (Original) A strain of *Francisella tularensis* subspecies tularensis wherein a gene that encodes a *purF* gene has been inactivated.